

CLAIMS

We Claim:

1. A biomass gasification system, comprising:
a primary combustion chamber;
a secondary combustion chamber fluidly connected to said primary combustion chamber;
a heat exchanger fluidly connected to said secondary combustion chamber; and
a rotating grate rotatably positioned within said primary combustion chamber for supporting the biomass during gasification.

2. The biomass gasification system of Claim 1, including an oxygen mixer positioned between said primary combustion chamber and said secondary combustion chamber.

3. The biomass gasification system of Claim 1, including a feeder unit in communication with said primary combustion chamber for delivering biomass onto said rotating grate.

4. The biomass gasification system of Claim 3, wherein said feeder unit includes a disintegration unit for disintegrating the biomass before entering said primary combustion chamber.

1 5. The biomass gasification system of Claim 4, wherein said feeder unit
2 includes a fuel magazine capable of storing a volume of the biomass for inputting
3 biomass into said disintegration unit.

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6 6. The biomass gasification system of Claim 2, wherein said feeder unit
7 includes a plunger member that pushes the biomass into an opening within said
8 primary combustion chamber onto said rotating grate.

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11 7. The biomass gasification system of Claim 6, wherein said plunger member
12 moves along a path radial to said rotating grate.

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15 8. The biomass gasification system of Claim 6, wherein said plunger member
16 has a cyclical action.

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19 9. The biomass gasification system of Claim 6, wherein said opening within
20 said primary combustion chamber is surrounded by an input member having a tubular
21 structure, wherein said plunger member is slidably positioned within said input
22 member.

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25 10. The biomass gasification system of Claim 4, wherein said feeder unit
26 includes a conveyor positioned between said disintegration unit and said primary
27 combustion chamber.

1 11. The biomass gasification system of Claim 1, wherein said rotating grate
2 includes a plurality of openings within for allowing air to pass upwardly through the
3 biomass positioned upon said rotating grate.

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6 12. The biomass gasification system of Claim 11, including an air distribution
7 system for forcing air beneath said rotating grate through said openings.

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10 13. The biomass gasification system of Claim 1, including an ash disposal unit
11 positioned beneath said rotating grate for removing collected ash from said primary
12 combustion chamber.

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15 14. The biomass gasification system of Claim 1, wherein said rotating grate has
16 a shape and size similar to an interior of said primary combustion chamber.

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19 15. The biomass gasification system of Claim 1, including a drive motor
20 mechanically connected to said rotating grate for rotating said rotating grate.

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23 16. A biomass gasification system, comprising:
24 a primary combustion chamber;
25 a rotating grate rotatably positioned within said primary combustion chamber
26 for supporting the biomass during gasification; and
27 a drive motor mechanically connected to said rotating grate for rotating said
28 rotating grate.

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17. The biomass gasification system of Claim 16, including a feeder unit in communication with said primary combustion chamber for delivering biomass onto said rotating grate.

18. The biomass gasification system of Claim 17, wherein said feeder unit includes a plunger member that pushes the biomass into an opening within said primary combustion chamber onto said rotating grate.

19. The biomass gasification system of Claim 16, wherein said rotating grate includes a plurality of openings within for allowing air to pass upwardly through the biomass positioned upon said rotating grate.

20. The biomass gasification system of Claim 16, including an air distribution system for forcing air beneath said rotating grate through said openings.